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# 中亞漸新統的新的牛科化石

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蘇聯科學院古生物研究所過去十餘年來在蒙古和哈薩克斯坦採集了大量的第三紀反芻類化石。在這些材料的研究工作中，發現了一些新的屬和種，增加了我們對這類動物進化歷史的知識。

在蒙古所採集的化石中，從漸新統地層中發現的一個牛科的新原始屬，特別富有意義。

## 牛科 Bovidae

## 古高齒獸屬 *Palaeohypsodontus* 新屬

**屬型** 亞洲古高齒獸 (*Palaeohypsodontus asiaticus*) 新種。

**層位和地點** 蒙古塔塔爾溝(三道溝附近)，中漸新統。

**特徵** 體小(和水鼷鹿 *Hyaemoschus* 相近)。臼齒高；齒冠指数(齒長與齒寬所成之比例)在受相當磨損的第二下臼齒 ($M_2$) 上爲 125%，第三下臼齒 ($M_3$) 爲 135%。下臼齒沒有附柱、古鹿褶和齒帶。第三下臼齒的齒座是圓形的，並不分成兩個半圓。

**比較** 因爲所發現的化石只有殘破的斷片，所以只能對古高齒獸的系統位置和種系發生的關係作出初步的結論。其頗高的齒冠指数使得它可與鼷鹿區別開來。第一批似鹿的反芻類——漸新統的 *Eumeryx* 以及下中新統的兩棲鼷鹿 *Amphitragulus* 等都具有古鹿褶且頰齒的齒冠低得多。與蒙古下中新統("洛"建造)的最古的和古的牛科——蒙古戈壁獸及西歐和北高加索中中新統的最古的和古的牛科(*Eotragus clavatum* Lartet, *Paratragucerus caucasicus* Sokolov和 *Hypsodontus miocenicus* Sokolov) 等相比，則可以看出古高齒獸是最原始的。古高齒獸同下中新統的戈壁獸的牙齒構造很相似，二者之間可能有着種系上的關係。但是二者之間也有一些差異，如大小(古高齒獸比戈壁獸小一半)和齒冠指数的数值(在戈壁獸中，同等磨損階段的齒冠指数爲 186.6, Sokolov 1952, p. 157)。

下中新統的與牛科有關係的其他反芻類的牙齒化石 (如 *Propalaeoryx*, *Strogulognathus* 等等)，無論在其地質時代上或者在其是否屬於牛科的問題上仍有爭論 (Pilgrim, 1939; Sokolov, 1952)。

古高齒獸的這樣一些特征，如體小，齒冠指数比其他屬爲弱，齒狹長，均使我們可以認爲它是牛科的較爲古老的代表或者是鼷鹿類的由於向草食方面適應而早期特化了的分支之一。

## 亞洲古高齒獸 *Palaeohypsodontus asiaticus* 新種

**正型標本** 附有 $M_2$—$M_3$ 的右側下顎破片(古生物研究所編號 473—110，產於蒙古塔塔爾溝；時代爲中漸新統)以及左下第三臼齒 ($M_3$) (編號 473—93)。

**描述** 從下顎破片來判斷，這個動物應比水鼷鹿稍大些。下臼齒的特點是有很長的齒根(齒根長度幾乎與磨損了的齒冠相等)；釉質略具波紋，外側面上的底柱呈圓形；內側面上的附尖不發育，尤以前附尖爲甚；$M_3$ 的後座反而很發育。齒帶和古鹿褶則未有發育。呈平均磨損狀態的各齒的大小是(以毫米計)：$M_2$——長 6.5；寬 4.5；高 5.5；$M_3$——長 9，寬 5，高 12。

**討論** 在蒙古的這些古老堆積中，有帶有高頰齒的古反芻類的存在有着巨大的意義，因爲這一事實使我們有理由相信：

1. 早在漸新世時在鼷鹿類型的反芻類中就已開始有向鹿類和牛類的分化過程。

2. 中亞很可能是似鹿動物和牛類出現和原初進化的中心(而不是像許瓦茲 Schwarz 1937 年所主張的那樣，認爲牛的出現和原初進化中心在非洲)。

3. 在中亞漸新統中有帶有高冠頰齒的反芻類，說明在那兒有一些草原並雜有各種穀類。

此外必須注意，最高度的齒冠指数見之於巨大的食草類 *Arsinotherium* (北非的下漸新統)和 *Pyrotherium* (南非的漸新統-下中新統)。但是在本文作者看來，這些動物的齒冠指数不應該用食用草類來解釋，而應該用研磨(如板齒犀)水生植物來解釋，這些食料中混雜有許多河底渣滓。

這一概念的進一步詳細討論將見之於卽將發表的另一篇文章中。

# NEW BOVIDAE FROM THE OLIGOCENE OF CENTRAL ASIA

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**(Abstract)**

During the last decade a great deal of remains of Tertiary ruminants have been collected by the expeditions of the Paleontological Institute of the Academy of Sciences of the USSR in Mongolia and Kazakstan. The study of this material leads to the discovery of some new genera and species and enables us to get some new conceptions on the evolution of these mammals.

In the collections of the Mongolian Paleontological expeditions there are remains of a primitive genus of Bovidae from the Oligocene of Mongolia which is of special interest.

## Bovidae Gray, 1821

### Genus *Palaeohypsodontus* gen. nov.

### Type of genus: *Palaeohypsodontus asiaticus* sp. nov.

**Horizon and Locality**: Middle Oligocene of Mongolia, Tatal Gol geographically close to the locality of Hsanda Gol being of the same geological age.

**Diagnosis**: Size small (as in *Hyaemoschus*). The molars are rather high; the index of hypsodonty (the ratio of the height of a tooth to its breadth) at a certain

stage of wear: for $M_2$—125% and for $M_3$—135%. The additional columns, the palaeomeryx fold and the cingulum on the lower molars are lacking. The talonid of $M_3$ is rounded, but it is not divided on the internal and external crescents.

**Comparison**: Due to the fragmentary character of remnants only preliminary conclusions can be done as to the systematic position and philogenetical relationship of *Palaeohypsodontus*. It is rather a high degree of hypsodonty that enables one to distinguish this genus from Tragulids. The first deer-like ruminant—the Oligocene *Eumeryx*, the lower miocene *Amphitragulus* and others have the palaeomeryx fold and the much more lower crowns of cheekteeth. Their comparison with the most ancient and archaic Bovidae from the Lower Miocene of Mongolia "Loo" Formation *Gobiocerus mongolicus* Sokolov, 1952 and from the Middle Miocene of Western Europe and North Caucasus with *Eotragus clavatum* Lartet, *Paratragocerus caucasicus* Sokolov, 1949 and *Hypsodontus miocenicus* Sokolov, 1949 show that *Palaeohypsodontus* is the most primitive. There is a great similarity in the structure of teeth and probably a philogenetical relationship between *Palaeohypsodontus* and Lower Miocene *Gobiocerus*. But there is some difference between them, however, in size (*Palaeohypsodontus* being twice smaller than *Gobiocerus*) and in the degree of hypsodonty (in *Gobiocerus* at the same stage of wear it equals to 186. 6, Sokolov 1952, p. 157).

Other finds of teeth of ruminants from Lower Miocene relating to Bovidae, such as *Propalaeoryx* Stromer, 1926, *Strogulognathus* Filhol, 1926 and others are still under discussion either as to the date of their geological age or to their belonging to Bovidae (Pilgrim, 1939; Sokolov, 1952).

Such features of *Palaeohypsodontus*, as their small sizes, a weaker hypsodonty in comparison with the genera, and their narrow teeth enable one to consider it a more archaic representative of Bovidae or one of the early specialized branch of Tragulina due to their adaptation to become herbivorous.

## *Palaeohypsodontus asiaticus* sp. nov.

(Pt. I and Fig. 1)

**Type**: A fragment of the right lower jaw with $M_2$—$M_3$; Paleontol. Instit. Coll. 473—110. Mongolia, Tatal Gol; Middle Oligocene. Then there is $M_3$ sin. 473—93.

**Description**: Judging from the fragment of the lower jaw, the animal was a little larger than *Hyaemoschus*. The lower molars are characterized by very long roots of their teeth (their length is almost equal to the height of the worn crown); the enamel is slightly rippled, the columns from the external side are rounded; the styles on the internal side are weakly developed, especially the anterior one; the talonid of $M_3$ on the contrary is well developed. The cingulum and the palaeomeryx fold have not been developed. The size (in mm) in an average state of wear of teeth: $M_2$—length 6.5, breadth 4.5, height 5.5; $M_3$—length 9, breadth 5, height 12.

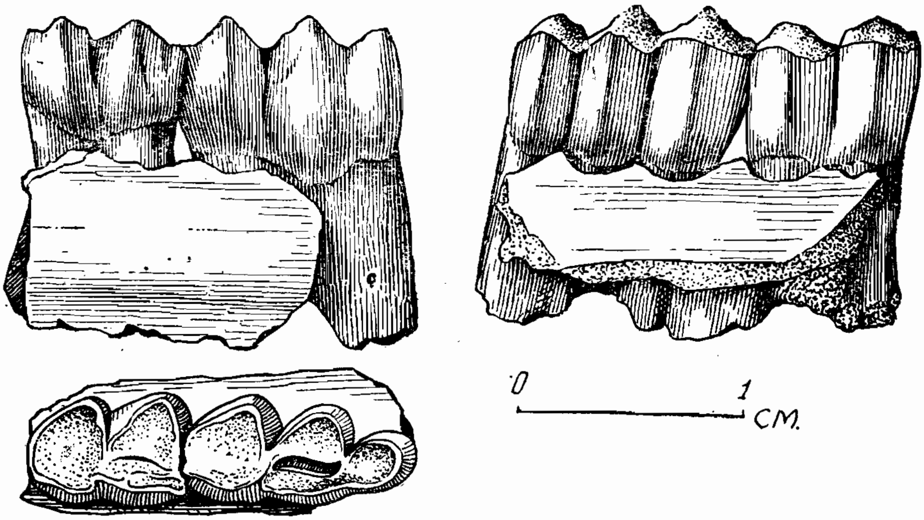



Fig. 1 *Palaeohypsodontus asiaticus* gen. et. sp. nov., fragment of lower jaw with $M_2$—$M_3$.

**Remarks**: The presence in these ancient deposits of Mongolia of an archaic ruminant with high cheek teeth is of great interest and gives reason to believe that:

1. Already in Oligocene there began a process of differentiation among the ruminants of traguloid type on cervids and bovids.

2. Central Asia was likely to be the centre of occurrence and original evolution of deer-like animals and bovids (but not Africa for bovids, as suggested by Schwarz, 1937).

3. The presence in the Oligocene of Central Asia of the ruminants with the hypsodont cheek teeth indicates that there were some grassy areas with various corns there.

Besides it is necessary to note that the greatest hypsodonty was observed in large herbivorous *Arsinoitherium* (the Lower Oligocene of N. Africa) and in *Pyrotherium* (Oligocene-Lower Miocene of S. America). But to the author's mind hypsodonty of these animals may be explained not by grassyferous but by grinding (as in *Elasmotherium*) of aquatic vegetation in which much admixture of ground clay is found.

A more detailed discussion of these conceptions will be presented in the next paper soon to be published.

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